

**Notice of Allowability**

Application No.

10/561,297

Examiner

Ling-Siu Choi

Applicant(s)

MOAD ET AL.

Art Unit

1713

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Amendment filed 03/29/2007.
2. ☒ The allowed claim(s) is/are 1-5,7,8,11-20 and 22.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

**DETAILED ACTION**

1. This Office Action is in response to the Amendment filed March 29, 2007. Claims 6, 9-10, and 21 were canceled and claims 1-5, 7-8, 11-20, and 22 are now pending.

***Allowable Subject Matter***

2. Claims 1-5, 7-8, 11-20, and 22 are allowed.
3. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Barbee et al. (WO 00/34393), Mitsuno et al. (WO 0 311 723 A1), and Mc Intyre et al. (EP 1 167 475 A2).

## Summary of Claim 1:

A composition comprising	
A	a synthetic polymer
B	a natural or synthetic phyllosilicate filler or a mixture of such phyllosilicate fillers
C	a dispersing agent – an acrylic copolymer containing an alkyl acrylate or methacrylate comprising <u>at least 8 methylene groups in the side chain</u>

Barbee et al. disclose a polymer-clay nanocomposite comprising (a) a melt-processible matrix polymer, (b) a layered clay material, and (c) a matrix polymer-compatible functionalized oligomer or polymer, wherein the functionalized oligomer or

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polymer can be poly(2-ethylhexyl acrylate) and its copolymer; the layered clay material can be montmorillonite, hectorite, mica, vermiculite, bentonite, nontronite, beidellite, volkonskoite, saponite, magadite, or kenyaite (abstract; page 17, lines 2-3). Attention is drawn to Example 1, wherein  $(b)/(a) = 6.36\text{g}/200\text{g} = 3.18\text{ wt\%}$  and  $(c)/(a) = 3.07\text{ g}/200\text{ g} = 1.54\text{ wt\%}$ . Barbee et al. further disclose that the polymer-clay nanocomposite also comprises pigment, stabilizer, compatibilizer, or plasticizer (page 18, lines 5-13). However, Barbee et al. do not teach or fairly suggest a composition comprising (A) a synthetic polymer, (B) a natural or synthetic phyllosilicate filler or a mixture of such phyllosilicate fillers, and (C) an acrylic copolymer containing an alkyl acrylate or methacrylate comprising at least 8 methylene groups in the side chain.

Mitsuno et al. disclose a composition comprising (a) 27-87 wt% of a polypropylene resin, (b) 3-15 wt% of a modified polypropylene resin containing an unsaturated dicarboxylic acid or anhydride repeating unit, (c) 5-30 wt% of an ethylene copolymer composed of ethylene repeating unit, an alkyl (meth)acrylate with the alkyl moiety having 1-8 carbon atoms, and an unsaturated dicarboxylic acid anhydride repeating unit, and (d) 5-40 wt% of a filler, wherein the filler can be a clay or mica (abstract). Mitsuno et al. further disclose that the dry blend of components which form the composition are melt-kneaded at 220°C (page 6, line 29). However, Mitsuno et al. do not teach or fairly suggest a composition comprising (A) a synthetic polymer, (B) a natural or synthetic phyllosilicate filler or a mixture of such phyllosilicate fillers, and (C) an acrylic copolymer containing an alkyl acrylate or methacrylate comprising at least 8 methylene groups in the side chain.

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Mc Intyre et al. disclose an aqueous coating composition comprising (a) an aqueous carrier medium; (b) transparent iron oxide pigment particles; (c) a mixture of acrylic copolymer pigment dispersants containing (i) a acrylic copolymer dispersant having a hydrophilic stabilizing segment and a hydrophobic adsorbing segment having acid groups attached thereto and (ii) an acrylic copolymer dispersant having a hydrophilic stabilizing segment and a hydrophobic adsorbing segment having phosphate group attached thereto, and (iii) an acrylic copolymer dispersant having a hydrophilic stabilizing segment and a hydrophobic adsorbing segment having alkyl amino groups and preferably benzyl groups attached thereto; (d) a film forming polymeric binder; and (e) a crosslinking agent for the binder, wherein **component (i)** is a random acrylic copolymer comprises alkyl (meth)acrylate monomer with the alkyl group having 1-12 carbon atoms, acrylic acid or methacrylic acid, hydroxyl alkyl (meth)acrylate monomer with alkyl group having 1-4 carbon atoms, and a acrylamide-2-methyl propane sulfonic acid monomer (abstract; claims 1 and 7). Thus, Mc Intyre et al. do not teach or fairly suggest a composition comprising (A) a synthetic polymer, (B) a natural or synthetic phyllosilicate filler or a mixture of such phyllosilicate fillers, and (C) an acrylic copolymer containing an alkyl acrylate or methacrylate comprising **at least 8 methylene groups** in the side chain.

In light of the above discussion, it is evident as to why the present claims are patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

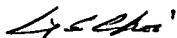
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accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reach on 571-272-1114.



LING-SUI CHOI  
PRIMARY EXAMINER

April 25, 2007